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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,510

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Hiroyoshi Matsumura

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01/04/2007

WENDEROTH, LIND & PONACK, L.L.P.

2033 K STREET N. W.

SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

RAHLL, JERRY T

ART UNIT

PAPER NUMBER

2874

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/538,510

Applicant(s)

MATSUMURA ET AL.

Examiner

Jerry T. Rahl

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12,13 and 17-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 12,13 and 17-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/05/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 05 October 2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings were received on October 5, 2006. These drawings are accepted as submitted.

Specification

3. The Examiner acknowledges the amended Specification received October 5, 2006. The Specification is acceptable as submitted.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 12-13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,594,419 to Ukrainczyk.

7. Regarding independent Claim 12, Ukrainczyk describes an optical fiber (30) and at least one GRIN lens (28) fusion spliced to an end of the optical fiber. While Ukrainczyk does not specifically describe the numerical aperture of the GRIN lens as larger than that of a light emitting sources, light sources with very small apertures (less than that of a GRIN lens as described by Ukrainczyk) are well-known in the art. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use such a small numerical aperture light emitting source with the fiber structure of Ukrainczyk. The motivation for doing so would have been to transmit an optical signal to a system including the fiber. Further, Ukrainczyk does not describe the numerical aperture of the GRIN lens as 0.43. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use such a combination, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The motivation for doing so would have been to ensure transmission of an optical signal into the fiber of Ukrainczyk.

8. Regarding Claim 13, Ukrainczyk does not describe the GRIN lens having a coefficient of thermal expansion as $15 \times 10^{-7} \text{K}^{-1}$ or less. However many materials used for lenses have such thermal qualities. It would have been obvious to one of ordinary skill in the art at the time of invention to use such a low coefficient of thermal expansion material, since it has been held to be

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within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to ensure a good fusion joint.

9. Regarding independent Claim 17, Ukrainczyk describes an optical fiber (30), a first GRIN lens (28) and a second GRIN lens, spliced to the fiber and the first lens (see Figures 2A and 2B). Ukrainczyk does not specifically describe the numerical aperture of the first lens as larger than the numerical aperture of the second GRIN lens. At the time of invention, it would have been obvious to one of ordinary skill in the art to use lenses have numerical apertures in such a relation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable range involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation for doing so would have been to ensure transmission of an optical signal into the fiber of Ukrainczyk. Further, Ukrainczyk does not specifically describe the numerical apertures of the first lenses, fiber and light source having the relationship presently claimed. At the time of invention, it would have been obvious to one of ordinary skill in the art to use lenses have numerical apertures in such a relation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable range involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation for doing so would have been to ensure transmission of an optical signal into the fiber of Ukrainczyk.

10. Regarding Claim 18, Ukrainczyk does not describe the numerical aperture of the GRIN lens as 0.43. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use such a combination, since it has been held that discovering an optimum value

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of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The motivation for doing so would have been to ensure transmission of an optical signal into the fiber of Ukrainczyk.

11. Regarding Claim 19, Ukrainczyk does not specifically describe the dimensional qualities of the first GRIN lens having the relation presently claimed. At the time of invention, it would have been obvious to one of ordinary skill in the art to use lenses have numerical apertures in such a relation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable range involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation for doing so would have been to ensure transmission of an optical signal into the fiber of Ukrainczyk.

12. Regarding Claim 20, Ukrainczyk does not describe the GRIN lens having a coefficient of thermal expansion as $15 \times 10^{-7} \text{K}^{-1}$ or less. However many materials used for lenses have such thermal qualities. It would have been obvious to one of ordinary skill in the art at the time of invention to use such a low coefficient of thermal expansion material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to ensure a good fusion joint.

Response to Arguments

13. Applicant's arguments filed October 5, 2006 have been fully considered but they are not persuasive. Applicant argues that the prior art reference to Ukrainczyk does not describe the tip part of the GRIN lens as flat, primarily based upon a discussion of the embodiment of the prior art shown in Fig. 4 of the Ukrainczyk reference. The examiner notes that either end of the GRIN

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lens shown in Fig. 4 of Ukrainczyk may be considered "a tip", and that the left-hand side of the GRIN lens shown is flat. Additionally, the Ukrainczyk reference shows GRIN lenses with two flat "tips" (see Figures 2A and 2B). Therefore, the Applicant's arguments are not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. The examiner can normally be reached on M-Th (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jerry T Rahll


MICHELLE CONNELLY-CUSHMAN
PRIMARY EXAMINER
12/26/06